Catalogue

Inverter-chargers

Battery monitoring

Engineered power

Inverters

Battery chargers

Battery splitters

Battery separators

DC/DC converters

SWISS made power

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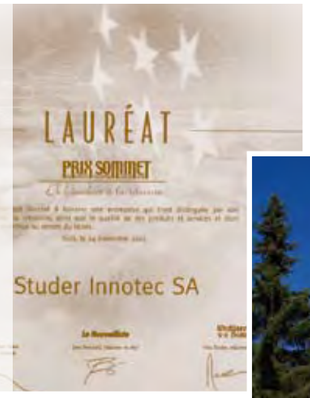
Photos credits
Robert Hofer: Studer's products; Perspective: 4, 5, 24; Steca: p. 6 bottom; Jeanneau: p. 8 top; Meteorisk: p. 3, 8, 36; Siblik: p. 21.

Graphism
Atelier Perspective, R. Gigon, Sion.

February 2009

Experience and competences



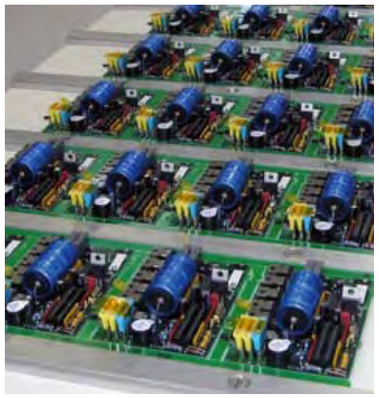
Studer Innotec was founded in 1987 by Roland Studer, current General Director. From 1987 to 1991, the company developed its areas of competences in the solar photovoltaics and in the energy conversion, with the first inverters (DC/AC).

In 2005, the Sommet Prize, organized among others by the Union Bank of Switzerland was awarded to Studer Innotec, for its capabilities to innovate as well as to export its inverters.

90% of the turnover exported

The launch in 1994 of the Twinpower, then in 1995 of the SI, both sine wave inverters with unbeaten performances so far, makes Studer Innotec's offer very attractive to demanding export markets.

This is the start of an export business which represents now some 90% of its turnover.



Leadership

Studer Innotec is today the leader of the inverter market in Switzerland and in Europe, and a major actor in the rest of the World.

It employs 50 people and manages a network of more than one hundred distributors in more than 70 countries.

Thanks to a large range of products, it is the only inverter manufacturer to cover the solar photovoltaic market as well as the nautical, the mobile, the backup and the telecom markets.

Integration and flexibility of the production

The philosophy of the company has been, from the very beginning, to master the process from A to Z, so from the development to the sales of the products. This is why Studer Innotec has started as a vertically integrated manufacturer, therefore more flexible than its competitors.

In other respects, to turn the markets expectations into products and services, an 8 people team is fully dedicated to Research & Development.

The choice of the performance

The high-tech design of its products, as well as the choice of the performance and of the reliability, brings Studer Innotec to select its components with the highest care. This is the reason why it has chosen the latest technologies, like the digital signal processors (DSP) which provide better performances and a higher efficiency to its inverters.

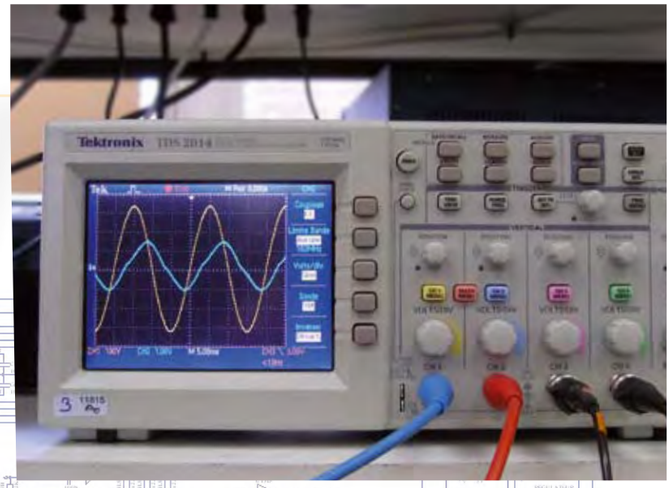
Comfort and versatility of the products

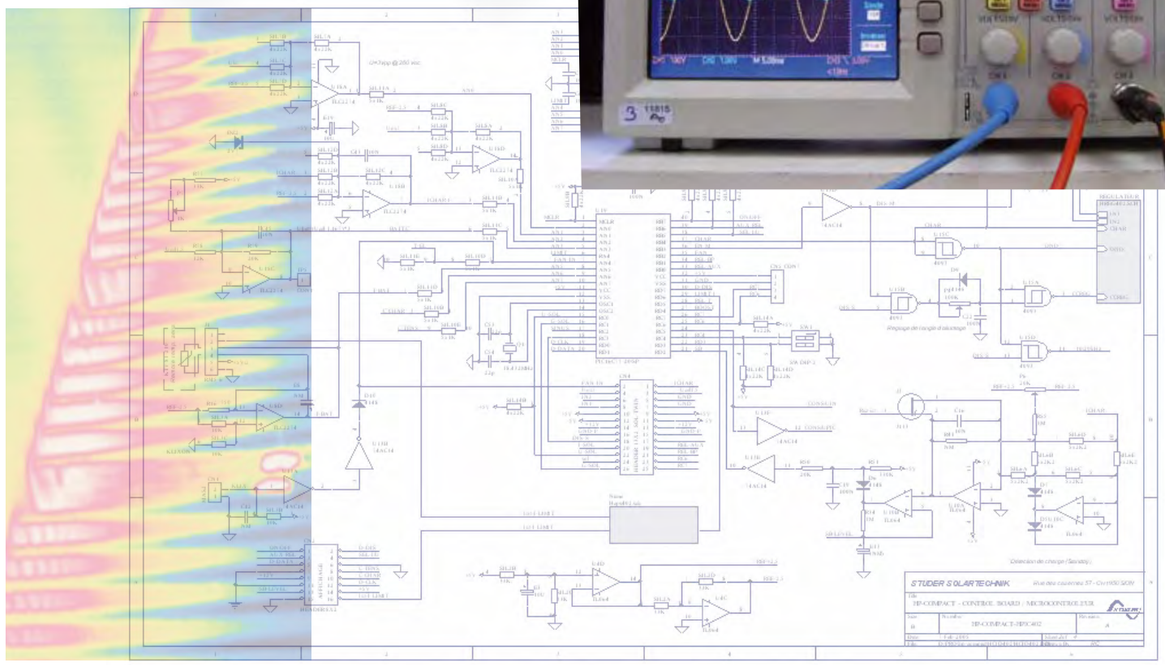
In future, this choice for quality and for service will continue to guide our strategic axes.

Beyond the performances, the next inverters will provide more comfort and will offer a greater versatility to their users.

Closeness to the clients

From research to industrial implementation, Studer Innotec intends to keep on investing financially and also in human resources, in order to maintain its lead in terms of the offer and of the closeness to the clients. This closeness expresses itself also by a network of partners qualified to service its products. The addresses of these partners, as well as the distributors, will be found on the company's website, under the heading « Distributors ».



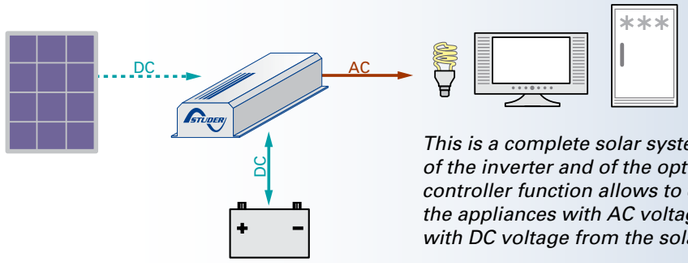


Applications in remote areas

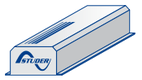
Far from any electrical grid, by choice or by force, security and comfort (lighting, heating, household appliances, leisure electronics, telecoms...) can yet be provided by autonomous energy systems. These systems consist firstly of an energy source, normally a genset, a solar generator, a wind turbine or a combination of them, secondly of a battery storage, and then thirdly of devices (inverter-charger, battery charger) able to charge the battery from this energy source and to supply the users with AC voltage (inverter, inverter-charger).

The examples below show the products in some stand-alone applications.

A complete solar system

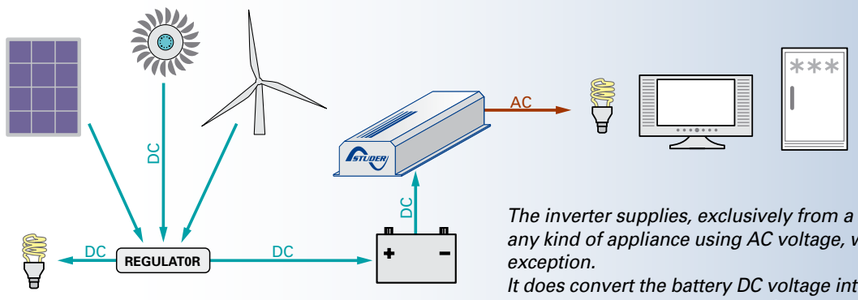


This is a complete solar system that the combination of the inverter and of the optional built-in solar charge controller function allows to create. The inverter supplies the appliances with AC voltage and charges the battery with DC voltage from the solar generator.

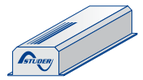


AJ serie p. 20
(200 - 2000 VA)

Quality AC voltage for all electrical appliances



The inverter supplies, exclusively from a battery, any kind of appliance using AC voltage, without exception.
It does convert the battery DC voltage into AC voltage with a better quality than from the public grid.



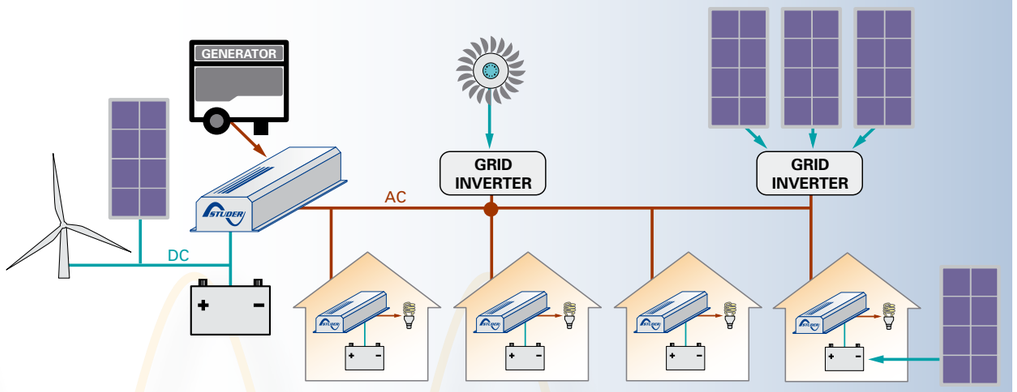
Xtender serie p. 12
(1600 - 63000 VA)

Compact series p. 18
(1100 - 7000 VA)

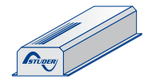
AJ serie p. 20
(200 - 2000 VA)

SI serie p. 22
(600 - 10500 VA)

Village electrification

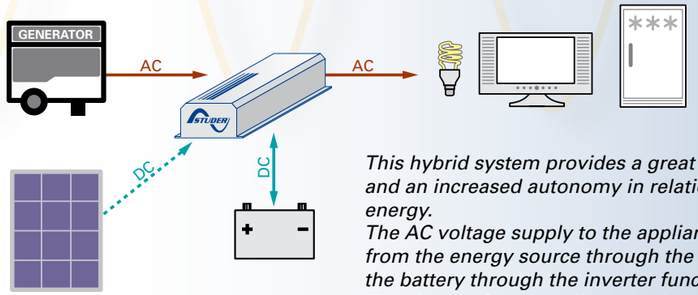


Various power sources supply energy to several consumer points.

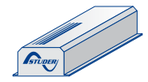


Xtender serie p. 12
(1600 - 63000 VA)

Hybrid system : more autonomy and flexibility



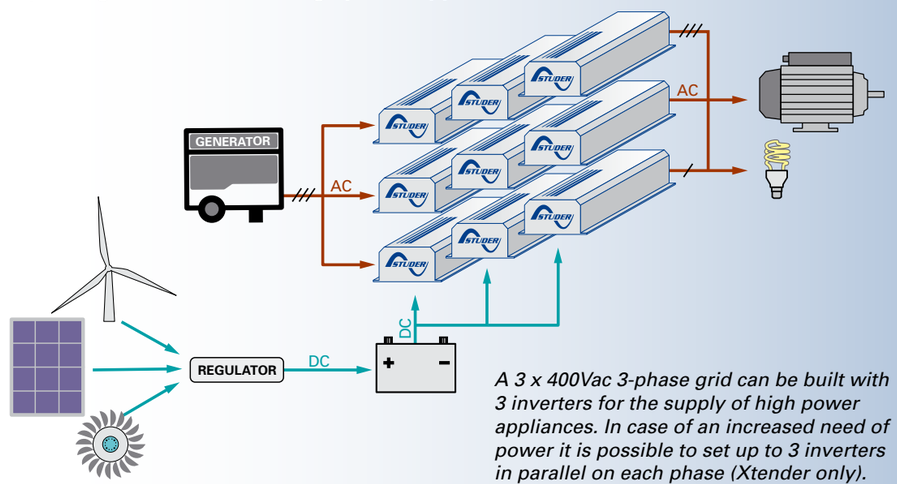
This hybrid system provides a great flexibility in supply and an increased autonomy in relation to each source of energy.
The AC voltage supply to the appliances is done directly from the energy source through the transfer relay, or from the battery through the inverter function.
The charger function allows to charging the battery with the genset. The size of the genset can be reduced thanks to the function Smart-Boost.



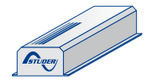
Xtender serie p. 12
(1600 - 63000 VA)

Compact series p. 18
(1100 - 7000 VA)

3-phase grid 3 x 400Vac for high power appliances



A 3 x 400Vac 3-phase grid can be built with 3 inverters for the supply of high power appliances. In case of an increased need of power it is possible to set up to 3 inverters in parallel on each phase (Xtender only).



Xtender serie p. 12
(1600 - 63000 VA)

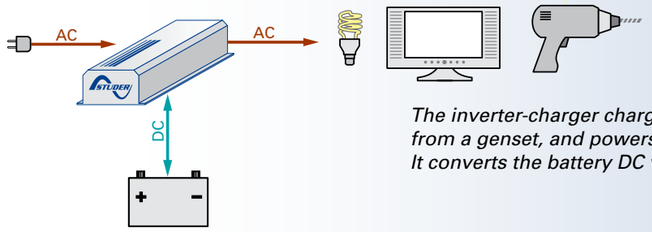
SI serie p. 22
(600 - 10500 VA)

Mobile applications

An energy system on-board is often necessary to power the AC voltage users, while the vehicle or the boat is away from the electrical grid (port, garage, camping…). In that case the energy is stored in the battery, which is actually charged by power sources on-board, like genset, solar generator, wind turbine, alternator or a combination of them. Studer Innotec offers the range of products that secure the management and the conversion of this energy, while securing an optimal supply of the appliances on-board.

The examples below show our products in some mobile applications.

A simple and reliable system on-board

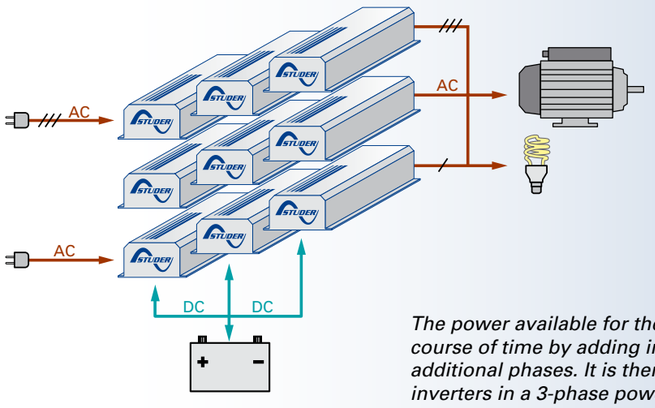


The inverter-charger charges the battery from the grid or from a genset, and powers any kind of electrical appliance. It converts the battery DC voltage to AC voltage.

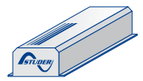
Xtender serie p. 12
(1600 - 63000 VA)

Compact series p. 18
(1100 - 7000 VA)

An upgradeable power

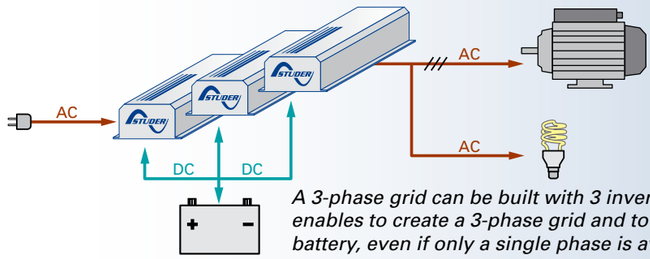


The power available for the users can be adapted in the course of time by adding inverters in parallel or by creating additional phases. It is therefore possible to install up to 9 inverters in a 3-phase power system.

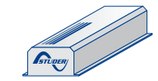


Xtender serie p. 12
(1600 - 63000 VA)

3 x 400Vac 3-phase grid on-board



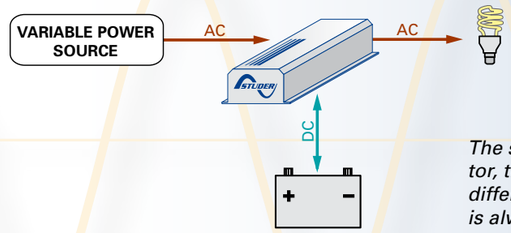
A 3-phase grid can be built with 3 inverters. The serie Xtender enables to create a 3-phase grid and to charge simultaneously the battery, even if only a single phase is available as a power source



Xtender serie p. 12
(1600 - 63000 VA)

SI serie p. 22
(600 - 10500 VA)

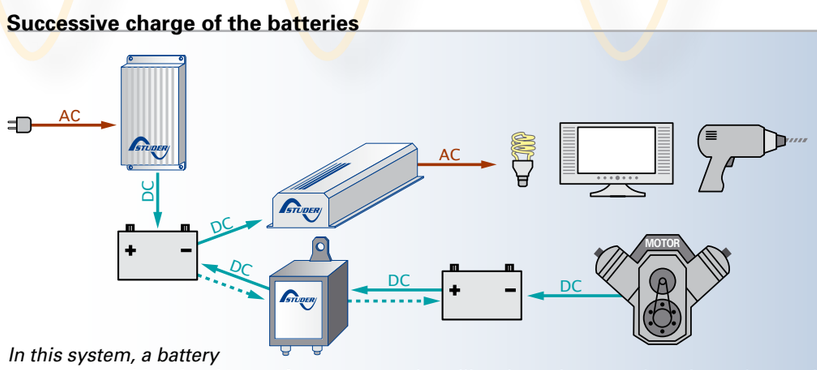
Variable power source assistance



The source being a variable power alternator, the Smart-boost will supply the power difference in order that the power delivered is always the same.

Xtender serie p. 12
(1600 - 63000 VA)

Successive charge of the batteries

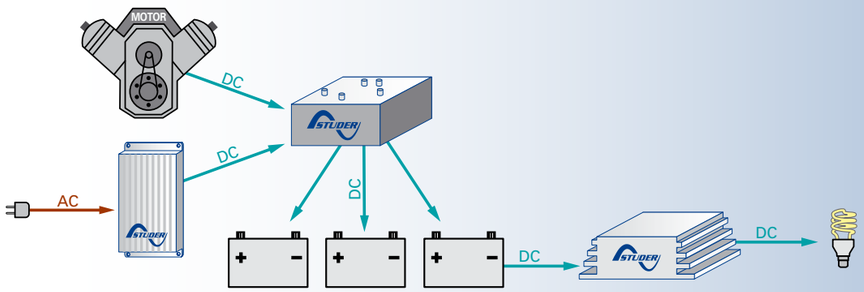


In this system, a battery separator enables the charge of one or several auxiliary batteries once the primary battery is charged.

MBR serie p. 26

MBC serie p. 24

Simultaneous charge of batteries



A MOSFET splitter, with almost no voltage losses, enables to split the charge current to and in between several batteries. From the battery pack, a DC/DC converter will step up or step down the voltage according to the voltage of the users, 12, 24 or 48Vdc.

MBI serie p. 26

MBC serie p. 24

MDCI-MDC series p. 25

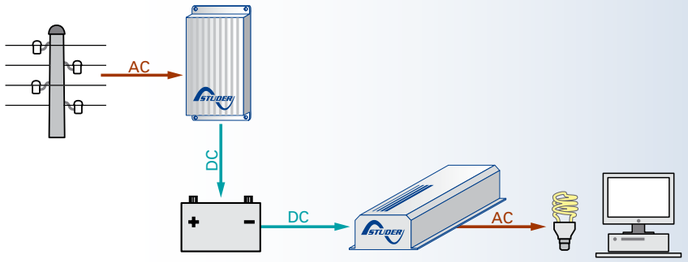
Backup applications

Powered by the public grid, the users like fridges, PCs, emergency lights, etc. which can not afford any power cut, are electrically secured. An inverter-charger with transfer relay or a combination of an inverter and a charger guarantees to maintain well the battery and to keep uninterrupted the supply of strategic appliances.

Studer Innotec offers solutions from 200W up to 63kW with a product choice unchallenged on the market.

Some examples of backup applications are described below.

Uninterruptible power supply on-line



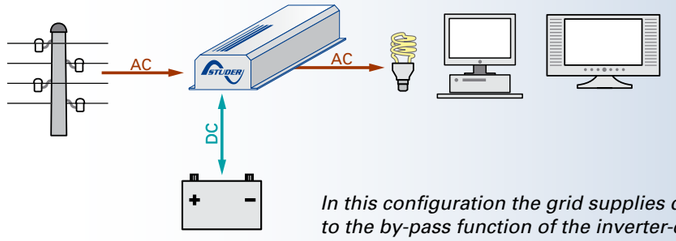
In this system, the functions of battery charge and of users supply are separated, with on one side a battery charger, and on the other an inverter. The fluctuations of the grid current have no impact on the users.

AJ serie p. 20
(200 - 2000 VA)

SI serie p. 22
(600 - 10500 VA)

MBC serie p. 24

Uninterruptible power supply off-line

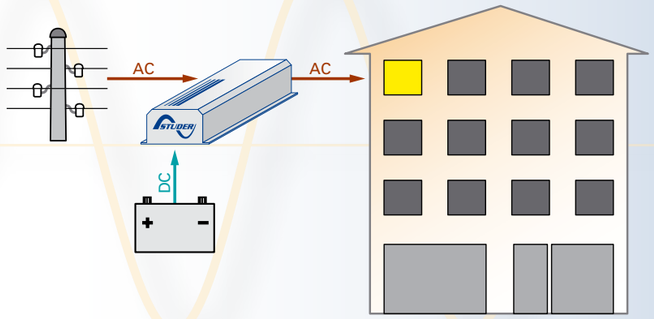


In this configuration the grid supplies directly the users thanks to the by-pass function of the inverter-charger. In case of a drop or a cut of the grid, the inverter-charger guarantees the supply of the users.

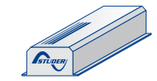
Xtender serie p. 12
(1600 - 63000 VA)

Compact series p. 18
(1100 - 7000 VA)

Individual Home backup



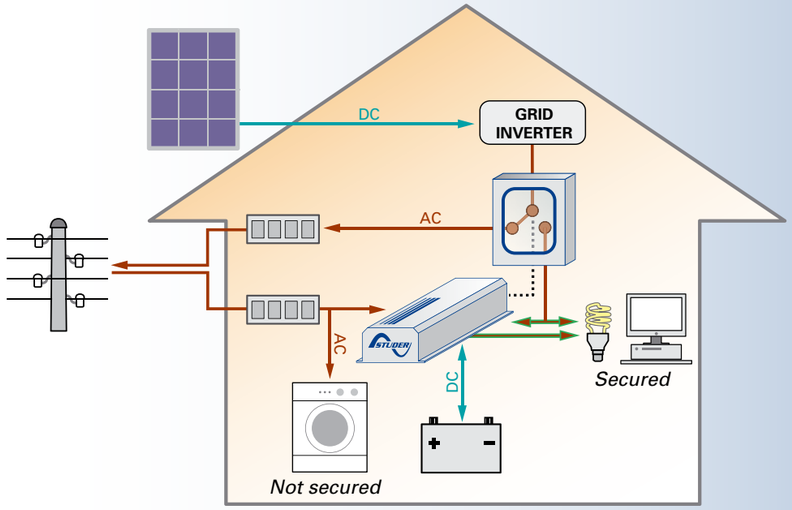
An inverter-charger is used there to provide a backup power in case of public grid outage. As soon as the power shuts off the inverter-charger switches on inverter mode and assures an uninterruptible power supply.



Xtender serie p. 12
(1600 - 63000 VA)

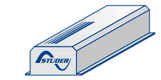
Compact series p. 18
(1100 - 7000 VA)

Solsafe – a backup system for grid connected solar installations



The installation of our solution Solsafe in a grid connected solar system enables to secured totally or partially the power supply in case of a power cut, and so to keep on using the solar energy being produced.

Solsafe
S-Box p. 17



Xtender serie p. 12
(1600 - 63000 VA)

Compact series p. 18
(1100 - 7000 VA)

Xtender Series

The Xtender serie provides an unmatched freedom of use thanks to its many functions. In a basic application, it offers together the functions of inverter, battery charger, transfer system and assistance to the source.

These functions can be combined and controlled in a totally automatic way for an exceptional comfort and an optimal management of the energy available. Its programmable auxiliary contacts allow as well the interconnection with existing systems or the implementation of extended functions.

Xtender range	Battery voltage	Inverter Power P30/Pnom	Inverter Power Smart-Boost	Charger Charge current	Transfer Maximum current
XTH 3000-12	12V	3000VA / 2500VA	3000VA	0 - 160A	50A / 11.5kVA
XTH 5000-24	24V	5000VA / 4500VA	5000VA	0 - 140A	50A / 11.5kVA
XTH 6000-48	48V	6000VA / 5000VA	6000VA	0 - 100A	50A / 11.5kVA
XTH 8000-48	48V	8000VA / 7000VA	8000VA	0 - 120A	50A / 11.5kVA
XTM 2000-12	12V	2000VA / 2000VA	2000VA	0 - 100A	50A / 11.5kVA
XTM 3500-24	24V	3500VA / 3000VA	3500VA	0 - 90A	50A / 11.5kVA
XTM 4000-48	48V	4000VA / 3500VA	4000VA	0 - 50A	50A / 11.5kVA

Complete technical specifications on page 28.

Xtender XTM
XTM 2000-12
XTM 3500-24
XTM 4000-48

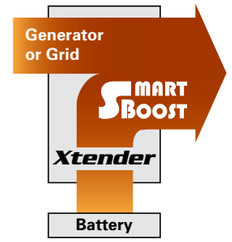
Xtender XTH
XTH 3000-12
XTH 5000-24
XTH 6000-48
XTH 8000-48

Features and performances

- Parallel and 3 phase configuration up to 9 units.
- Outstanding efficiency and overload capabilities.
- Smart-Boost Function for assistance to the source.
- Automatic reduction of peak loads (power shaving).
- Automatic allocation of the available power (power sharing).
- Standby level adjustable from a very low load threshold.
- Multi-stage, fully programmable battery charger with PFC.
- Ultra fast high power transfer relay.
- Control by digital signal processor (DSP).
- 2 fully independently programmable auxiliary contacts.
- Real time clock for event record and auxiliary relay programming.

Smart-Boost function

The function Smart-Boost enables to add the inverter power to another source, like for instance a genset or the shorepower, even in case of complex (reactive, crest factor etc.) loads. This offers the possibility to reduce the peak loads (power shaving) and to undersize the genset.



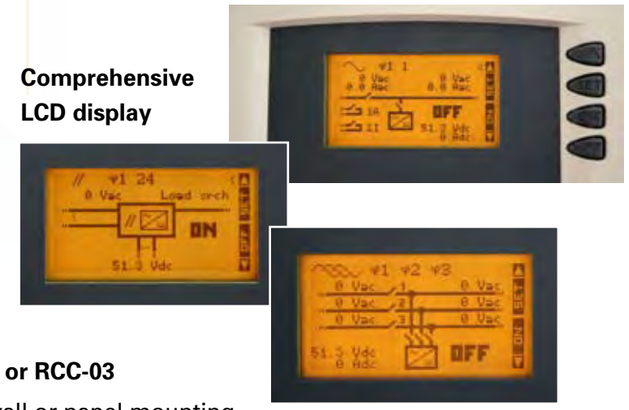
Wide modularity

By the implementation of several units, it is possible to create a 3-phase source or to set them in parallel to increase the power available without extra cost. Up to 9 inverters of the Xtender serie shall therefore be combined together up to 72 kW!

RCC-02

RCC-03

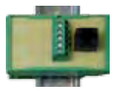
Comprehensive LCD display



Remote control and programming centre RCC-02 or RCC-03

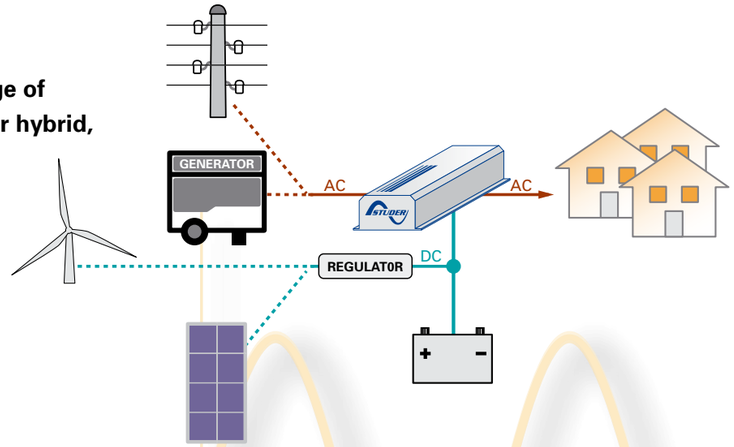
Apart from the enclosure difference, adapted for wall or panel mounting, both units have exactly the same features and allow the user to survey his system and fully customize it to his needs. RCC gives a controlled access to the many adjustable parameters of the Xtender. It enables the setting of the charge curve of the battery, the programming of the auxiliary contacts and gives access to a lot of operation options. Thanks to its graphic display RCC provides clear and comprehensive indications on the state of the system in selectable language. The unit memorizes and displays the events that occurred on an installation and so it does anticipate the problems that might appear. A slot for a SD card is available and it allow the parameters record and download as well as the full software update.

Accessories

	Remote control and programming centre RCC-02 with 2 m cable *For display, programming and updates purposes. Wall mounting.* *Dimensions HxLxl: 170 x 168 x 43.5 mm.*
	Remote control and programming centre RCC-03 with 2 m cable *For display, programming and updates purposes. Panel mounting.* *Dimensions: HxLxl: 130 x 120 x 42.2 mm.*
	***Remote Control Module RCM-10. Only for XTM with 3 m cable (possible up to 5 m)*** *DIN rail remote module for main on/off and programmable function input.* *Dimensions: HxLxl: 45 x 73 x 45 mm.*
	Battery temperature sensor BTS-01 with 3 m cable *This sensor enables to accurately adapt the charge thresholds to the battery temperature.* *Dimensions: HxLxl: 58 x 51.5 x 22 mm.*
	Communication cable for 3ph and parallel CAB-RJ45-8-2 (2 m) *Allows the setting in parallel or the implementation of a 3-phase system.*

The main configurations offered by the Xtender serie

Xtender family is a complete range of inverter-chargers ideally suited for hybrid, mobile and backup systems.

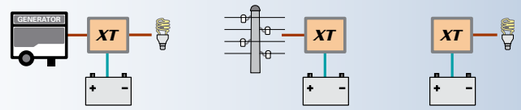


Easy set up of multi-units

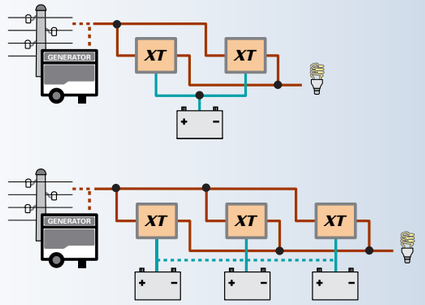
Easy accessible and robust connections

Compatible with standard cable channel (230 x 60 mm)

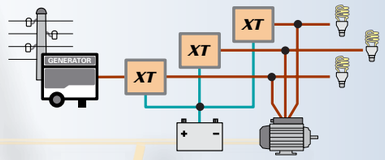
Inverter, charger and transfer relay
The Xtender basically works as an inverter and as a charger, combined with a transfer relay.



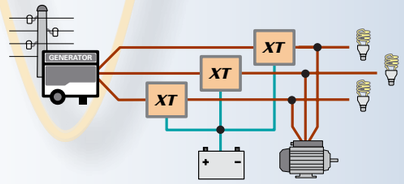
2 or 3 units in parallel on 1 phase
Increase of the power on one phase by setting 2 or 3 Xtender in parallel.



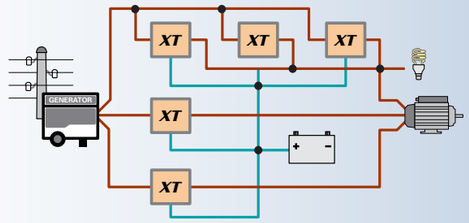
1 phase in and 3 phase out
Three-phase power supply from a single phase source.



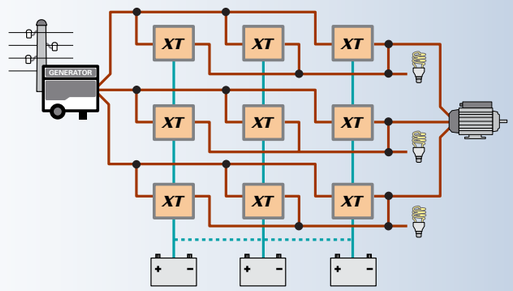
3 phase in and 3 phase out
Three-phase source for a three-phase power supply.



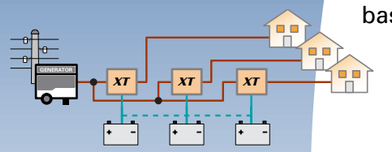
3 phase + with one reinforced phase
Three-phase power supply with increase of the power on one phase by setting 2 or 3 Xtender in parallel on this phase.



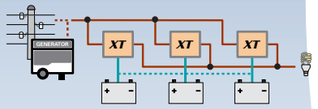
3 Xtender in parallel on 3 phases
Three-phase power supply with 3 Xtender on each phase, for power up to 72kW.



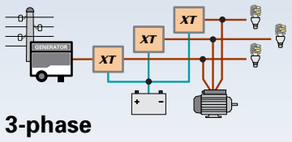
X-Connect system



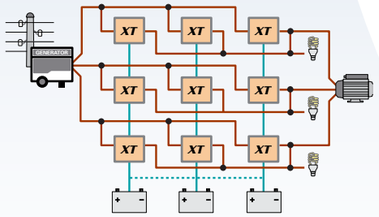
Centralized



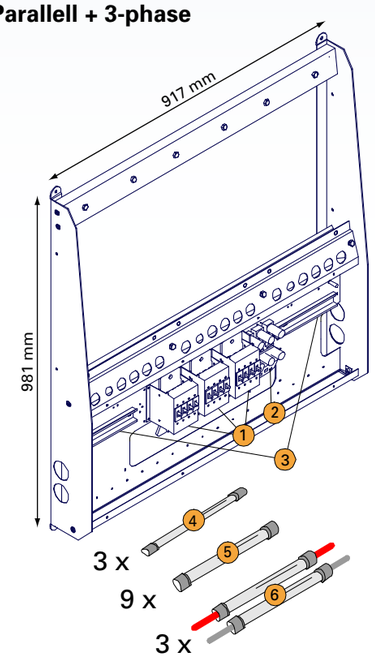
Parallell



3-phase



Parallell + 3-phase



Pre-wired mounting frame for Xtender multi-system

Offers a flexible and cost effective solution for high power systems based on XTH inverter

Up to 72kW multi-unit system

Frame is supplied with:

1. Pre-installed DC circuit breakers
2. Pre-installed DC fuses
3. Pre-installed DIN rails
4. Interconnection pipes and gland for auxiliary contact wiring
5. Interconnection pipes and gland for AC wiring
6. Interconnection pipes and gland + 90 mm² wire terminated with appropriates ring tongues for DC wiring from Xtender to breakers and fuses

Screws set for frame assembly

Solsafe: the anti-blackout system for grid connected solar installations

Despite a solar system on your house, in case of power outage, the grid inverters will shut off and the solar generator, whatever its size, will be useless. Studer Innotec has developped, already in 2004, a concept in which its inverter-chargers allow to keep energy available from the solar generator, even in case of a power cut.

Solsafe S-Box

Compared to other similar solutions, it offers:

- A great system flexibility by choosing independently the grid inverter power (matching the solar generator) and the stand-alone power (matching the needs for autonomous energy), so long the stand-alone inverter is as big or bigger than the grid inverter
- The choice of the grid inverter allowing to work with standard well known products
- To choose the grid inverter with any voltage input range, independently from the battery voltage
- A possible and easy upgrade of existing grid-connected solar installations

S-Box: a genuine cabling solution to implement the Solsafe

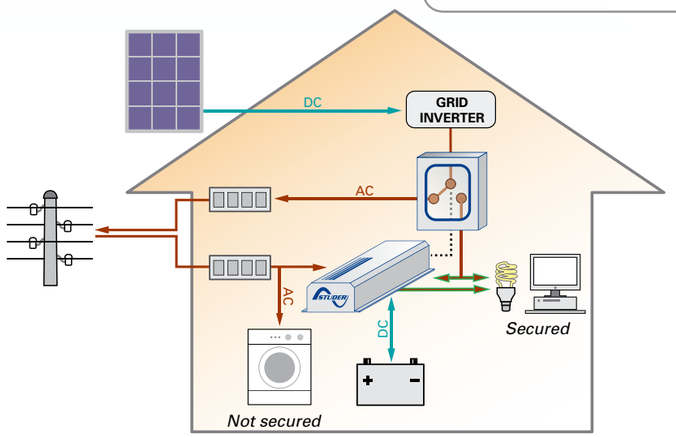
- Hassle free cabling
- Quick installation
- Easy commissioning

The S-Box can be supplied in 4 versions:

For single phase application:

- Solsafe box 25A for Compact..... S-Box-25C
- Solsafe box 25A for Xtender..... S-Box-25X
- Solsafe box 25A for Compact with ENS-26..... S-Box-25C-E
- Solsafe box 25A for Xtender with ENS-26..... S-Box-25X-E

For Solsafe implementation in 3ph systems, a schematic is at disposal on simple request.



Solsafe – a backup system for grid connected solar installations

The installation of our solution Solsafe in a grid connected solar system enables to secured totally or partially the power supply in case of a power cut, and so to keep on using the solar energy being produced.

Compact series

The models of the Compact series consist of 3 fully automatic functions: a sine wave inverter, a battery charger and a transfer system. Equiped with a high-end technology, they carry our long experience in the field of electrical supply.

Features and performances

- True sine wave voltage.
- Suitable for any kind of electrical appliance.
- Reliable and silent working with all kind of loads.
- Outstanding overload capabilities.
- Stand-by level adjustable over a large range and from a very low threshold.
- 4 STEP battery charger with PFC.
- Ultra-fast transfer relay.
- High efficiency.
- Full internal protection.
- Ultra-fast regulation.
- Microprocessor controlled.

XP COMPACT
XPC 1400-12
XPC 2200-24
XPC 2200-48

COMPACT
C 1600-12
C 2600-24
C 4000-48

HP COMPACT
HPC 2800-12
HPC 4400-24
HPC 6000-48
HPC 8000-48

Norm E certification

The XPC 1400-12, XPC 2200-24, C 1600-12 and C 2600-24 are certified to the ECE-R 10 norm. This certification is mandatory in the European Union for all electrical equipments on board of vehicles.

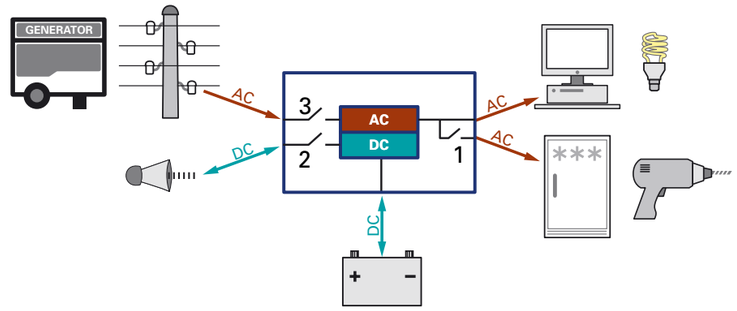
Compact range	Function inverter		Function charger	Transfer relay
	Power 30 min. / continuous at 25°C	Battery voltage	Adjustable charge current	Maximum current
XPC 1400-12	1400VA / 1100VA	12Vdc	0 - 45A	16A/3.7kVA
XPC 2200-24	2200VA / 1600VA	24Vdc	0 - 37A	16A/3.7kVA
XPC 2200-48	2200VA / 1600VA	48Vdc	0 - 20A	16A/3.7kVA
C 1600-12	1600VA / 1300VA	12Vdc	0 - 55A	16A/3.7kVA
C 2600-24	2600VA / 2300VA	24Vdc	0 - 55A	16A/3.7kVA
C 4000-48	4000VA / 3500VA	48Vdc	0 - 50A	16A/3.7kVA
HPC 2800-12	2800VA / 2500VA	12Vdc	0 - 110A	30A/6.9kVA
HPC 4400-24	4400VA / 4000VA	24Vdc	0 - 100A	30A/6.9kVA
HPC 6000-48	6000VA / 5000VA	48Vdc	0 - 70A	30A/6.9kVA
HPC 8000-48	8000VA / 7000VA	48Vdc	0 - 90A	50A/11.5kVA

Complete technical specifications on page 29.

Multifunctional contact

The 16 A. potential free contact can be programmed according to the user wishes. It can react according to the battery levels as well as to the system status (alarm conditions, presence of the public grid, sunlight's presence...), and it enables for example:

1/ Automatic disconnection of second priority users (conditional supply).
2/ Alarm signalisation, acoustic signal, MODEM, radio alarm etc.
3/ Conditional battery charge.

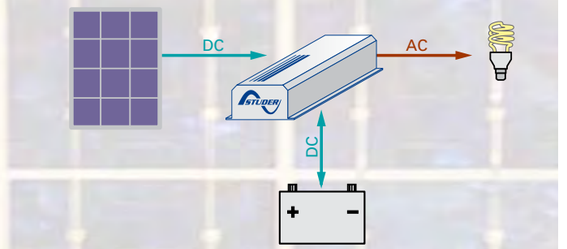


Accessories

		XP COMPACT	COMPACT	HP COMPACT
	Remote control RCC-01 *Comprehensive LED display. Also for the programming of the COMPACT series (supplied with 20m cable).*	•	•	•
	Temperature sensor CT-35 *This sensor adapts charge levels to the temperature variations of the battery (supplied with 3m cable).*	•	•	•
	Remote control RPS-01 *The setting of the power sharing can be remotely controlled by means of the remote control supplied with a 20m cable.*		•	•
	Auxiliary relay module ARM-01 *Equiped with 4 programmable relays, this module enables to implement the system Solsafe (see page 11).*	•	•	•
	Cover CFC-01 *This cover provides an additional protection to the connections by means of glands.*	•	•	
	Cover C-IP23 *Cover for a protection against intrusions or projections, installed after the mounting of the device. It extends the protection index from IP 20 to IP 23.*	•	•	

Optional built-in solar charge controller (-S)

The models XP Compact and Compact are available with an optional built-in charge controller (I/U/Uo) making the inverter-charger an «all in one» device for a solar installation.



AJ serie

The AJ range consists of sine wave inverters that convert the DC voltage of a battery into AC voltage which can be used by all electrical appliances.

AJ serie
AJ 275-12
AJ 350-24
AJ 400-48

AJ serie
AJ 500-12
AJ 600-24
AJ 700-48

AJ serie
AJ 1000-12
AJ 1300-24

AJ serie
AJ 2100-12
AJ 2400-24

Features and performances

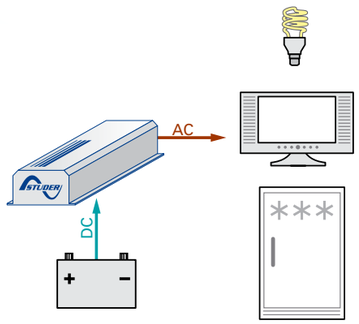
- High and steady efficiency.
- Outstanding overload capabilities.
- Digital regulation and control by microprocessor.
- Electrical supply to any kind of appliance.
- Full internal protection.
- Stand-by level adjustable from a very low threshold.

Norm E certification

The AJs in 12 and 24Vdc are certified to the ECE-R 10 norm. This certification is mandatory in the European Union for all electrical equipments on board of vehicles.

AJ range	Power 30 min. / continuous at 25°C	Battery voltage
AJ 275-12	275VA / 200VA	12Vdc
AJ 350-24	350VA / 300VA	24Vdc
AJ 400-48	400VA / 300VA	48Vdc
AJ 500-12	500VA / 400VA	12Vdc
AJ 600-24	600VA / 500VA	24Vdc
AJ 700-48	700VA / 500VA	48Vdc
AJ 1000-12	1000VA / 800VA	12Vdc
AJ 1300-24	1300VA / 1000VA	24Vdc
AJ 2100-12	2100VA / 2000VA	12Vdc
AJ 2400-24	2400VA / 2000VA	24Vdc

Complete technical specifications on pages 30-31.

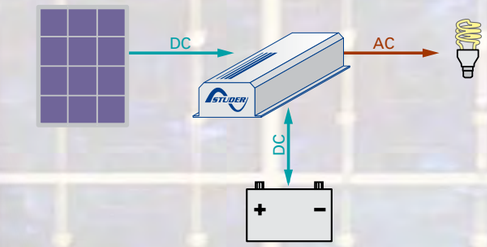


Options and accessories

	AJ 275-12, AJ 350-24 AJ 400-48, AJ 500-12 AJ 600-24, AJ 700-48	AJ 1000-12, AJ 1300-24 AJ 2100-12, AJ 2400-24
Remote control JT8 *Enables to control the inverter remotely (supplied with 10m cable).*		•
Plug for remote control RCM: *RCM 01: ON when a contact is closed;* *RCM 02: ON when a voltage is present (key controlled) on the remote control;* *RCM 03: ON when a contact is open.*	•	

Optional built-in solar charge controller (-S)

An optional 3 STEP charge controller (I/U/Uo) can be supplied built-in making the inverter AJ an «all in one» device for a solar installation.



Rural electrification (Solar Home System)

The rural electrification and the inverters of the AJ serie: excellence to the benefit of the development of remore areas and populations. Choosing AC voltage for the rural electrification systems is going for simplicity, reliability and cost saving. Indeed, compared with a DC voltage one, a system with an inverter is often more efficient from 100W of solar power, and is always since 200W.

The AJ serie, due to its overload capability and to its very reliable stand-by system adjustable from 1W, is the most suitable range of inverters to meet the rural electrification technical and economical requirements.

SI serie

The SI range consists of sine wave inverters that convert the DC voltage of a battery into AC voltage which can be used by all electrical appliances.

SI serie
SI 612
SI 624
SI 648
SI 812
SI 824

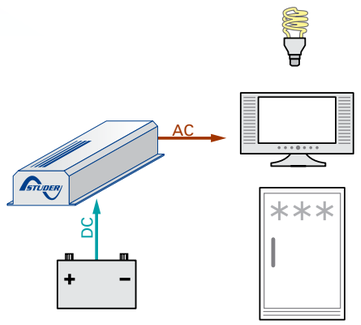
SI serie
SI 1212
SI 1224
SI 1248
SI 1624
SI 2324
SI 2348
SI 3324
SI 3548

Features and performances

- High efficiency.
- Outstanding overload capabilities thanks to the combined use of a toroidal transformer, of an oversized power stage and of an ultra-fast regulation.
- Electrical supply to any kind of appliance.
- Full internal protection.
- Stand-by level adjustable over a large range and from a very low threshold.
- Reliable and silent working with all kind of loads.
- Possibility in option to connect 3 inverters together in an autonomous 3 x 400Vac 3-phase grid.
- Built-in solar charge controller in option for solar systems (only SI 600 and 800).
- A range in 19" rack is also available from 1200 to 3500W (see option SIxxxxIND).

SI range	Continuous power at 25°C	Battery voltage
SI 612	600VA	12Vdc
SI 624	600VA	24Vdc
SI 648	600VA	48Vdc
SI 812	800VA	12Vdc
SI 824	800VA	24Vdc
SI 1212	1200VA	12Vdc
SI 1224	1200VA	24Vdc
SI 1248	1200VA	48Vdc
SI 1624	1600VA	24Vdc
SI 2324	2300VA	24Vdc
SI 2348	2300VA	48Vdc
SI 3324	3300VA	24Vdc
SI 3548	3500VA	48Vdc

Complete technical specifications on page 32.



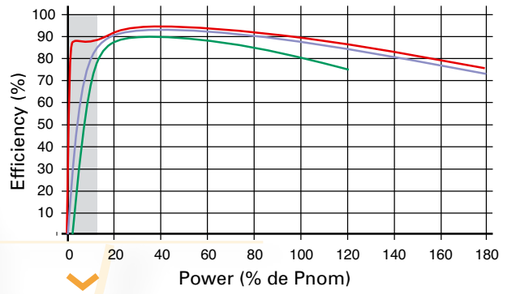
Options and accessories

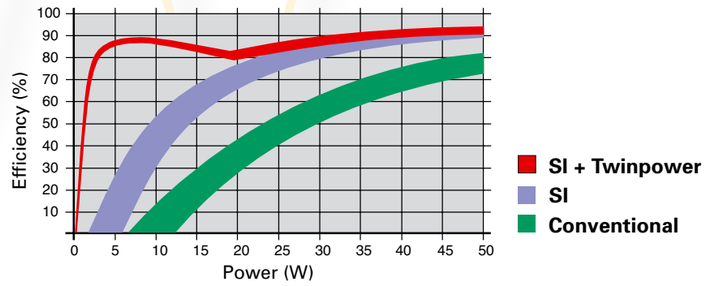
	SI 612 to SI 824	SI 1212 and up
Cover C-IP23 *Cover for a protection against intrusions or projections, installed after the mounting of the device. It extends the protection index from IP 20 to IP 23.*	●	●
Option Twinpower SI xxxxTP, *without stand-by, no-load consumption < 0.5W.*		●
Option 3-phase SI xxxxPE, *for 3 x 400V applications.*		●
Option 19" SI xxxxIND, *inverter in 19" rack.*		●
Alarm contact SI xxxxA, *potential free contact 60V/0.5A.*	●	●
Solar charge controller SI xxxS, *built in the SI, 16A max. current.*	●	

Option TWINPOWER

From 1200W there is a possible choice between a stand-by system (load detection adjustable from 0.3 to 20W) and the unique TWINPOWER option.

The TWINPOWER option enables the permanent use of very small loads (like alarms or security systems) with an outstanding efficiency, 10 times higher than any other inverter, and a no-load consumption < 0.5W (see above Options and accessories).



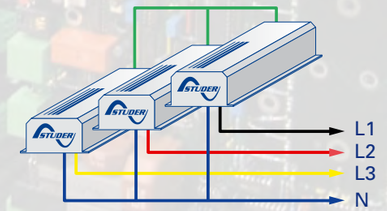


Industrial casing in 19" rack

The availability of the inverters in 19" rack, from the SI 1200, is a direct evolution of the sine wave SI series and it meets particularly well the industrial applications (see above Options and accessories).

3-phase

With the PE option, and from the SI 1200, it is possible to connect 3 inverters together to build a 3 x 400Vac 3-phase grid. This extends the SI range up to 10500VA (3 x SI 3548 PE). Such a configuration enables to supply motors and other 3-phase equipments, even with asymetrical powers on the phases (see above Options and accessories).



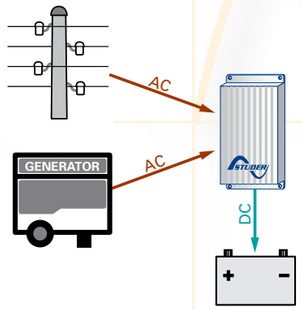
Battery chargers

MBC serie

The MBC chargers enable to charge a battery from an AC voltage source of supply (genset, public grid, shore power...). These chargers are also IP65 and therefore especially designed for outdoor applications.

Features and performances

- Universal input voltage.
- Charge of lead-acid or GEL batteries.
- Protection against battery overcharge.



MBC range

	Battery voltage	Input voltage	Output current	Output
MBC 12-06/1	12 Vdc	100-260 Vac	6 A	1
MBC 12-15/1	12 Vdc	100-260 Vac	15 A	1
MBC 24-03/1	24 Vdc	100-260 Vac	3 A	1
MBC 24-08/1	24 Vdc	100-260 Vac	8 A	1

Complete technical specifications on page 33.

DC/DC converters

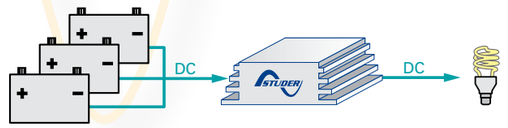
MDCI and MDC series

The DC/DC converters type MDCI and MDC are used, depending on the model, either to step up or to step down a DC voltage.

The converters of the MDCI range are electrically isolated.

Features and performances

- High efficiency.
- Low consumption.
- Protection against short-circuit, overheat, overvoltage and reverse polarity.
- Great stability of the output voltage for a more reliable system.



MDCI range

	Power	Input variant	Output variant	Isolated
MDCI 100	100 W	A/B/C/D	12/24 Vdc	Yes
MDCI 200	200 W	A/B/C/D	12/24 Vdc	Yes
MDCI 360	360 W	A/B/C/D	12/24 Vdc	Yes
MDCI 360 A24 Charger	330 W	A	24 Vdc	Yes

A = 9-18 Vdc B = 20-35 Vdc C = 30-60 Vdc D = 60-120 Vdc

MDC range

	Current	Input voltage	Output voltage	Isolated
MDC 1224-7	7 A	9-18 Vdc	24 Vdc	No
MDC 2412-5	5 A	18-35 Vdc	13.2 Vdc	No
MDC 2412-8	8 A	18-35 Vdc	13.2 Vdc	No
MDC 2412-12	12 A	20-35 Vdc	13.2 Vdc	No
MDC 2412-20	20 A	20-35 Vdc	13.8 Vdc	No
MDC 2412-30	30 A	20-35 Vdc	13.8 Vdc	No

Complete technical specifications on page 33.

The MDC 2412-20 and 2412-30, as well as the MDCI 360 A24 « Charger » can also be used to charge a battery from a source at their input terminal to a battery at their output terminal.

MOSFET battery splitters

MBI serie

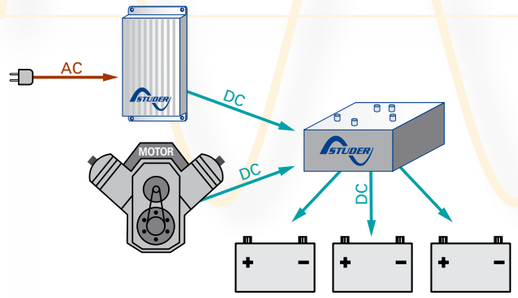
The MOSFET battery splitters MBI generate an insignificant voltage drop. They supply the current of a charger or of an alternator to several batteries. All batteries are thus charged in the same time and therefore will not charge or discharge each others.

MBI range	Input	Charge current	Charge input	Outputs
MBI 100/2	12/24 Vdc	100 A	1	2
MBI 150/2	12/24 Vdc	150 A	1	2
MBI 100/3	12/24 Vdc	100 A	1	3
MBI 150/3	12/24 Vdc	150 A	1	3
MBI 200/3	12/24 Vdc	200 A	1	3
MBI 2-100/3	12/24 Vdc	100 A	2	3

Complete technical specifications on page 34.

Features and performances

- Automatic adjustment to the batteries voltage.
- Possible charge of the battery from an alternator
- Voltage drop < 0.4 V at 100 Amp. charge current.
- Suitable for electronic alternators.



Batteries separators

MBR serie

The batteries separators MBR are microprocessor controlled.

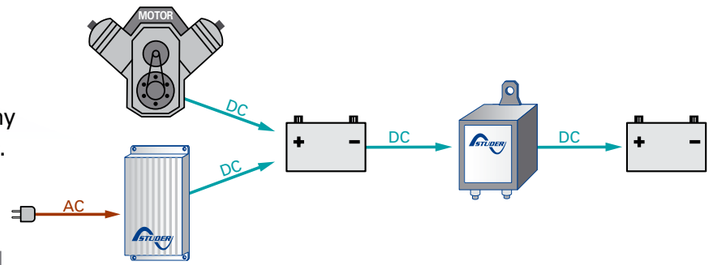
They charge first the primary battery, from a charger or an alternator, then the other batteries by connecting them in parallel.

MBR range	Battery voltage	Charge current	Batteries
MBR 12/24-100	12/24 Vdc	100 A	2
MBR 12-160	12 Vdc	160 A	2
MBR 24-160	24 Vdc	160 A	2
MBR 12-400	12 Vdc	400 A	2
MBR 24-400	24 Vdc	400 A	2

Complete technical specifications on page 35.

Features and performances

- Insignificant voltage drop.
- Protects the auxiliary battery from any overvoltage coming from the charge.



Battery protection

MBW serie

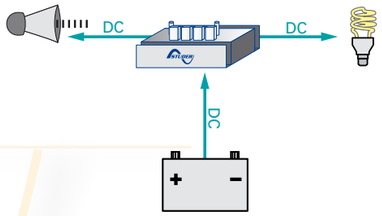
The Battery Watch protects the battery from an excessive discharge and also the users in case of overvoltage.

Features and performances

- Programming of the connection and disconnection voltages by jumpers.
- MOSFET switches, therefore no sparks.
- Alarm output to indicate excessive voltage drops.

MBW range	Current maximum/nominal	Operating voltage range (Vdc)
MBW 30	30/25	6-35
MBW 60	60/50	6-35
MBW 200	200/150	8-32

Complete technical specifications on page 35.

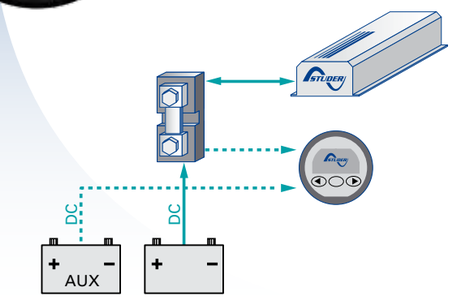


Battery monitoring

SBM-02

The SBM-02 is a highly accurate battery monitor with a history data memory. It is supplied together with a 500A/50mV shunt.

This device is designed for 12 and 24V batteries. The voltage pre-scaler SBM-PS-02 in option extends the use of the SBM-02 to 27-175V batteries.



Features and performances

- Digital display of the 6 most important parameters of a DC power system:
  1. Battery voltage (V)
  2. Current (A)
  3. Consumed Ampere-hours (Ah)
  4. Sate-of-charge (%)
  5. Time-to-go (h:m)
  6. Temperature (°C or °F)

Optional accessories

- Connection kit, type SBM-CAB-20, including 20m of twisted pair cable (3 x 2 x 0.5mm2) and 2 fuseholders.
- Communication kit, type SBM-COM, including RS232 interface box, 1.8m of 9p DSUB serial cable and software.
- Temperature kit, type SBM-TEMP-20, with a temperature sensor and 20 m cable.

Xtender series

Model	XTM 2000-12	XTH 3000-12	XTM 3500-24	XTH 5000-24	XTM 4000-48	XTH 6000-48	XTH 8000-48
Inverter (factory setting/range adjustable with RCC-02 or RCC-03)							
Nominal battery voltage	12V		24V		48V		
Input voltage range	9.5 - 17V		19 - 34V		38 - 68V		
Continuous power @ 25°C	2000VA	2500VA	3000VA	4500VA	3500VA	5000VA	7000VA
Power 30 min. @ 25°C	2000VA	3000VA	3500VA	5000VA	4000VA	6000VA	8000VA
Power 5 sec. @ 25°C	4.8kVA	7.5kVA	9kVA	12kVA	10.5kVA	15kVA	21kVA
Power Smart-Boost 30 min. @ 25°C	2000VA	3000VA	3500VA	5000VA	4000VA	6000VA	8000VA
Maximum load	Up to short-circuit						
Maximum asymmetric load	Up to Pcont.						
Load detection (stand-by)	2 to 25 W						
Cos φ	0.1-1						
Maximum efficiency	93%		94%		96%		96%
Consumption OFF/Stand-by/ON	1.2W/2.2W/9W	1.7W/2.2W/14W	1.3W/2.5W/11W	1.3W/2.5W/20W	1.6W/3W/12W	1.6W/3W/22W	1.6W/3.8W/30W
Output voltage	Sine wave 230Vac (+/- 2%) / 190-245Vac						
Output frequency	50 Hz adjustable 45-65Hz +/- 0.05% (crystal controlled)						
Harmonic distortion	<2%						
Dynamic behaviour	1 ms (on load change 0 to 100%)						
Overload and short-circuit protection	Automatic disconnection with 3 time restart attempt						
Overheat protection	Warning before shut-off - with automatic restart						
Battery charger 6 step adjustable : I-U-Uo-Equalize-Uo(low)-U(periodic)							
Charging current adjustable	0 - 100A	0 - 160A	0 - 90A	0 - 140A	0 - 50A	0 - 100A	0 - 120A
Input current balance adjustment	1 - 50A						
Maximum input voltage	265Vac						
Input AC voltage range	Adjustable threshold from 150 to 230Vac						
Input frequency	45 - 65Hz						
Power Factor Correction (PFC)	EN 61000-3-2						
Battery control (factory setting/range adjustable with RCC-02 or RCC-03)							
Absorption end	By duration 2 / 0.25 - 10h or by current - / 4 - 30A						
Absorption voltage	14.4 / 9.5 - 17V		28.8 / 19 - 34V		57.6 / 38 - 68V		
Periodic absorption voltage	- / 9.5 - 17V		- / 19 - 34V		- / 38 - 68V		
Floating voltage	13.6 / 9.5 - 17V		27.2 / 19 - 34V		54.4 / 38 - 68V		
Reduced floating voltage	- / 9.5 - 17V		- / 19 - 34V		- / 38 - 68V		
Equalization	By number of cycles (- / 1 - 100) or at set interval (- / 52 weeks)						
Equalization end	By duration 4 / 0.25 - 10h or by current - / 4 - 30A						
Equalization voltage	- / 9.5 - 17V		- / 19 - 34V		- / 38 - 68V		
Deep-discharge protection	10.8 / 9.5 - 17V		21.6 / 19 - 34V		43.2 / 38 - 68V		
Reduced floating time	- / 0 - 32 days						
Periodic absorption time	- / 0 - 10 hours						
Temperature compensation	-5 / 0 to -8mV/°C/Cell (only with optional BTS-01)						
General data	**XTM 2000-12**	**XTH 3000-12**	**XTM 3500-24**	**XTH 5000-24**	**XTM 4000-48**	**XTH 6000-48**	**XTH 8000-48**
Multifunction contact adjustable	2 independent contacts 16A 250Vac (potential free 3 points)						
Max. current on transfer relay	50A / 11.5kVA						
Transfer time	<15ms						
Weight	18.5kg	34kg	21.2kg	40kg	22.9kg	42kg	46kg
Dimension hxlxL [mm]	133x322x466	230x300x500	133x322x466	230x300x500	133x322x466	230x300x500	
Protection index	IP23						
Conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 61000-3-2, Dir. 89/336/EEC, LVD 73/23/EEC						
Operating temperature range	-20 to 55°C						
Ventilation	Forced from 55°C						
Acoustic level	<40dB / <45dB (without/with ventilation)						
Warranty	2 years						
Options							
Remote control and programmation centre RCC-02 or RCC-03	•		•		•		•
Communication cable for 3ph and parallel CAB-RJ45-8-2 (2 m)	•		•		•		•
Battery temp. Sensor BTS-01 (3 m)	•		•		•		•
Remote command module RCM-10 + 3 m cable	•		•		•		

Data may change without any notice.

COMPACT series

Model	XPC 1400-12	XPC 2200-24	XPC 2200-48	C 1600-12	C 2600-24	C 4000-48	HPC 2800-12	HPC 4400-24	HPC 6000-48	HPC 8000-48
Inverter										
Nominal battery voltage	12V	24V	48V	12V	24V	48V	12V	24V	48V	
Input voltage range	9.5 – 16V	19 - 32V	38 - 64V	9.5 - 16V	19 - 32V	38 - 64V	9.5 - 17V	19 - 34V	38 - 68V	
Continuous power @ 25°C	1100VA	1600VA	1600VA	1300VA	2300VA	3500VA	2500VA	4000VA	5000VA	7000VA
Power 30 min. @ 25°C	1400VA	2200VA	2200VA	1600VA	2600VA	4000VA	2800VA	4400VA	6000VA	8000VA
Power 5 sec. @ 25°C	3 x Pnom									
Maximum power	Up to short-circuit									
Maximum asymmetric load	Up to Pcont.									
Stand-by adjustment	1 to 25W									
Cos φ	0.1 - 1									
Maximum efficiency	94%	95%		94%	95%		93%	94%	96%	
Consumption OFF/Stand-by/ON	0.5/0.6/4W	0.8/0.9/7W	1.2/1.3/7W	0.5/0.6/6W	0.8/0.9/9W	1.2/1.4/12W	1.4/1.8/10W	1.7/2/16W	2/2.5/18W	2/3/30W
Output voltage	Sine wave 230Vac									
Output frequency	50Hz +/- 0.05% (crystal controlled)									
Total harmonic distortion	< 4%	< 2%								
Dynamic behaviour	0.5 ms (on load change 0 to 100%)									
Overload and short-circuit protection	Automatic disconnection with 3 time restart attempt									
Overheat protection	Acoustic warning before shut-off - with automatic restart									
Battery charger (4 STEP) I-U-Uo-Equalize (every 25 cycles)										
Charging current adjustable	0 - 45A	0 - 37A	0 - 20A	0 - 55A		0 - 50A	0 - 110A	0 - 100A	0 - 70A	0 - 90A
Input current balance adjustment	Not available			1 - 16A			1 - 30A			1 - 50A
Maximum input voltage	265Vac									
Input AC voltage range	Adjustable threshold from 150 to 230Vac									
Input frequency	45 - 65Hz									
Power Factor Correction (PFC)	EN 61000-3-2									
Optional solar charger (4 stages) I-U-Uo-Equalize (every 25 cycles)										
Maximum PV open circuit voltage (V)	25V	45V	90V	25V	45V	90V	Not available			
Maximum charge current (A)	30A	30A	20A	30A	30A	20A	Not available			
Charging curve	I-U-Uo-Equalize (every 25 cycles) / Not available						Not available			
Battery control (thresholds and times adjustable by the user)										
Absorption time	0-4 h									
End charge cycle voltage*	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V	
Floating voltage	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V	
Equalization time	0-4 h									
Equalization voltage	15.6V	31.2V	62.4V	15.6V	31.2V	62.4V	15.6V	31.2V	62.4V	
Deep-discharge protection	10.8V	21.6V	43.2V	10.8V	21.6V	43.2V	10.8V	21.6V	43.2V	
Temparature compensation (optional CT-35)	-3mV / ° C / Cell									
General data										
Multifunction contact programmable	16A - 250Vac (potential free 3 points)									
Max. current on transfer relay	16A/3.7kVA						30A/6.9kVA			50A/11.5kVA
Transfer time	< 40 ms									
Weight	11.7 kg	12.6 kg		16 kg	17.1 kg	29.4 kg	33 kg	39 kg	41 kg	45 kg
Dimension h x lx L [mm]	124x215x410			124x215x480		124x215x670	242x288x480			242x288x500
Protection index	IP20 (IP23 with top cover C-IP23)						IP 23			
Certification ECE-R 10 (E24)	•	•	Not available	•	•	Not available				
EC conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, EN 61000-3-2, Dir. 89/336/EEC, LVD 73/23/EEC									
Operating temperature range	-20°C up to +55°C									
Ventilation	From 45°C									
Accoustic level	<40dB / <45dB (without/with ventilation)									
Warranty	2 years									
Options										
Solar charge controller	30A	30A	20A	30A	30A	20A				

* Factory settings

Data may change without any notice.

AJ serie

Model		AJ 275-12	AJ 350-24	AJ 400-48	AJ 500-12	AJ 600-24	AJ 700-48
Inverter							
Nominal battery voltage		12V	24V	48V	12V	24V	48V
Input voltage range		10.5 – 16V (24V max.)	21 – 32V (44V max.)	42 – 64V (64V max.)	10.5 – 16V (24V max.)	21 –32V (44V max.)	42 –64V (64V max.)
Continuous power @ 25°C		200VA	300VA	300VA	400VA	500VA	500VA
Power 30 min. @ 25°C		275VA	350VA	400VA	500VA	600VA	700VA
Power 5 min. @ 25°C		350VA	500VA	600VA	575VA	675VA	900VA
Power 5 sec. @ 25°C		450VA	650VA	1000VA	1000VA	1200VA	1400VA
Maximum asymmetric load		150VA	150VA	200VA	250VA	300VA	300VA
Max. efficiency (%)		93%	94%	94%	93%	94%	94%
Cos φ max.		0.1 – 1 up to 200 VA	0.1 – 1 up to 300 VA	0.1 – 1 up to 300 VA	0.1 – 1 up to 400VA	0.1 – 1 up to 500VA	0.1 – 1 up to 500VA
Detection of the load		2W (only with the solar option -S)			Adjustable : 1 → 20W		
Current of short-circuit 2 sec. (exit)		2.3A (4.6A*)	3.2A (6.4A*)	4.6A (9.2A*)	5.2A (10.4A*)	5.7A (11.4A*)	7A (14A*)
Output voltage		Sine wave 230Vac (115Vac*) 0 / - 10%					
Frequency		50Hz (60Hz*) ± 0.05% (crystal controlled)					
Distortion THD (resistive load)		< 5% (@ Pnom.)					
Consumption Stand-by		0.3W**		0.4W**	0.3W	0.4W	1W
Consumption «ON» no load		1.9W	3.3W	5W	3.8W	8.5W	10W
Overheat protection (+/-5°C)		Shut down @ 75°C - Auto-restart @ 70°C					
Overload and short circuit protection		Automatic disconnection with 2 time restart attempt					
Reverse polarity protection		Protected by internal fuse					
Major discharge battery protection		Shut off @ 0.87 x Unom - Automatic restart @ Unom					
Cut overpressure		Shut off @ >1.33 x Unom - Automatic restart @ < Umax					
Accoustic alarm		Before low battery or overheating disconnection					
General data							
Weight		2.4 kg	2.6 kg		4.5 kg		
Dimensions		142mm x 163mm x 84mm			142mm x 240mm x 84mm		
Protection index IP		IP 30 conforms to DIN 40050					
Certification ECE-R 10 (E24)		•	•	Not available	•	•	Not available
EC conformity		EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, Dir. 89/336/EEC, LVD 73/23/EEC					
Operating temperature		-20°C up to +50°C					
Ventilation forced		From 45°C ± 5°C					
Acoustic level		< 45 dB (with ventilation)					
Warranty		2 years					
Approximate correction of Pnom		-1.5%/°C since +25°C					
Recommended battery capacity		> 5 x Pnom/Unom (recommended value in Ah)					
Length cables (Battery/left AC)		1.2m / 1m			1.5m / 1m		
Options		**AJ 275-12-S**	**AJ 350-24-S**	**AJ 400-48-S**	**AJ 500-12-S**	**AJ 600-24-S**	**AJ 700-48-S**
Solar regulator	Voltage max.	25V	45V	90V	25V	45V	90V
	Current max.	10A			15A		
	Principle	Floating 3 stages (I/U/UO)					
	Absorption voltage	14.4V	28.8V	57.6V	14.4V	28.8V	57.6V
	Floating voltage	13.6V	27.2V	54.4V	13.6V	27.2V	54.4V
Plug for remote control (RCM)		•	•	•	•	•	•

* 115Vac/60Hz on request
** Standby with solar option -S

Data may change without any notice.

AJ serie

Model		AJ 1000-12	AJ 1300-24	AJ 2100-12	AJ 2400-24
Inverter					
Nominal battery voltage		12V	24V	12V	24V
Input voltage range		10.5 – 16V (24V max.)	21–32V (44V max.)	10.5 – 16V (20V max.)	21–32V (40V max.)
Continuous power @ 25°C		800VA	1000VA	2000VA	2000VA
Power 30 min. @ 25°C		1000VA	1300VA	2100VA	2400VA
Power 5 min. @ 25°C		1200VA	2000VA	2450VA	2800VA
Power 5 sec. @ 25°C		2200VA	2800VA	5000VA	5200VA
Maximum asymmetric load		500VA	600VA	1000VA	1200VA
Max. efficiency (%)		93%	94%	92% @ 300VA	94% @ 300VA
Cos φ max.		0.1 – 1 up to 800VA	0.1 – 1 up to1000VA	0.1 – 1 up to 2000VA	0.1 – 1 up to 2000VA
Detection of the load		Adjustable : 1 → 20W			
Current of short-circuit 2 sec. (exit)		10A (20A*)	13A (26A*)	26A (52A*)	30A (60A*)
Output voltage		Sine wave 230Vac (115Vac*) 0 / -10%			
Frequency		50 Hz (60Hz*) ± 0.05% (crystal controlled)			
Distortion THD (resistive load)		< 5% (@ Pnom. & Uin nom.)			< 3% (@ Pnom & Uin nom.)
Consumption Stand-by		0.3W	0.4W	0.5W	0.4W
Consumption «ON» no load		9.0W	10.0W	13W	18W
Overheat protection (+/-5°C)		Shut down @ 75°C - Auto-restart @ 70°C			
Short circuit protection		Automatic disconnection with 2 time restart attempt			
Inversion of polarity protection		Protected by internal fuse 125A	Protected by internal fuse 100A	Not protected	Protected by internal fuse 150A
Major discharge battery protection		Shut off @ 0.87 x Unom - Automatic restart @ Unom			
Cut overpressure		Shut off @ >1.33 x Unom - Automatic restart @ < Umax			
Accoustic alarm		Before low battery or overheating disconnection			
General data					
Weight		8.5 kg		19 kg	18 kg
Dimensions		142mm x 428mm x 84mm		273mm x 399mm x 117mm	
Protection index IP		IP 30 conforms to DIN 40050		IP 20 conforms to DIN 40050	
Certification ECE-R 10 (E24)		•	•	•	•
EC conformity		EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, Dir. 89/336/EEC, LVD 73/23/EEC			
Operating temperature		-20°C up to +50°C			
Ventilation forced		From 45°C ± 5°C			
Acoustic level		< 45 dB (with ventilation)			
Warranty		2 years			
Approximate correction of Pnom		-1.5%/°C since +25°C			
Recommended battery capacity		> 5 x Pnom/Unom (recommended value in Ah)			
Length cables (Battery/left AC)		1.5m / 1m		1.7m / 1m	
Options		**AJ 1000-12-S**	**AJ 1300-24-S**	**AJ 2100-12-S**	**AJ 2400-24-S**
Solar regulator	Voltage max.	25V	45V	25V	45V
	Current max.	25A		30A	
	Principle	Floating 3 stages (I/U/UO)			
	Absorption voltage	14.4V	28.8V	14.4V	28.8V
	Floating voltage	13.6V	27.2V	13.6V	27.2V

* 115Vac/60Hz on request

Data may change without any notice.

SI serie

Model	SI 612, 624, 648	SI 812, 824	SI 1212,1224, 1248	SI 1624	SI 2324, 2348	SI 3324	SI 3548
Inverter							
Voltage input (Unom) [V]	12/24/48	12/24	12/24/48	24	24V/48	24	48
Input voltage range	Min. - Max. : < Unom x 0.95 to Unom x 1.33						
Dynamic correction of Umin.	- 10% @ Pnom						
Continuous power [VA]	600	800	1200	1600	2300	3300	3500
Power 15 min. @ 25°C	1.3 – 1.6 x Pnom / 25°C						
Power 3 min. @ 25°C	1.6 – 2 x Pnom / 25°C						
Power 5 sec. @ 25°C	3.5 x Pnom						
Asymmetric load	Up to 2 x Pnom						
Load detection (stand-by)	Adjustable : 0.3 → 20W						
Cos φ	0.1 – 1						
Maximum Efficiency [%]	91	92	93 - 95	93 - 95	95	95	95
«Stand-by» current [mA]	25/21/10	25/21	25/21/12	21	25/17	25	30
Power «ON» no load [W]	2.6	2.8	4.8	5.8	9	13	17
Power «ON» no load [W] TWINPOWER system			< 0.5	< 0.5	< 0.6	< 0.7	< 0.8
Output voltage	Sine wave 230 Vac ± 3%						
Frequency	50 Hz ± 0.01% (crystal controlled)						
Distortion	< 2% (at Pnom)						
Dynamic behaviour	From 0% fo 100% load change. Normalization : 0.5 ms						
Protections	Overload/Overheat/Short-circuit/Reverse polarity by internal fuse						
Overheating protection	75°C ± 3°C						
General data							
Weight	6.9	10.4	13.2	15.2	27	30	38
Length L x 124 (H) x 215 (W) [mm]	276		391		591	636	791
IP protection index	IP 20 complies with DIN 40050 / IP 23 with top cover C-IP23						
EC conformity	EN 61000-6-1, EN 61000-6-3, EN 55014, EN 55022, Dir. 89/336/EEC, LVD 73/23/EEC						
Forced ventilation	From 45°C +- 3°C						
Acoustic level	<40dB / <45dB (without/with ventilation)						
Options							
3-phase system (per unit) (-PE)			•	•	•	•	•
TwinPower system (-TP)			•	•	•	•	•
Top cover IP 23 (C-IP23)	•	•	•	•	•	•	•
Potential free alarm contact (60V/0.5A) (-A)	•	•	•	•	•	•	•
Solar charge controller 16A/12-24V (-S)	•	•					
Industrial casing in 19'' rack - 3U x 400 mm (-IND)			•	•	•	•	•

Other output specifications on request (Ex: 115V/60Hz)

Data may change without any notice.

MBC serie

Model	MBC 12-06/1	MBC 12-15/1	MBC 24-03/1	MBC 24-08/1
Battery voltage (Vdc)	12	12	24	24
Input voltage (Vac)	100-260 (40 - 60 Hz)			
Charge voltage (boost) (Vdc)	14.4	14.4	28.8	28.8
Charge voltage (float) (Vdc)	13.8	13.8	27.6	27.6
Output (A)	6	15	3	8
Cooling	Heat sink			
Outputs	1			
Efficiency	> 85 %			
Ambient temp. range	-25 to 50°C			
Dimensions lxwxh (mm)	155x80x36	195x100x47	155x80x36	195x100x46
Weight (kg)	0.9	1.8	0.9	1.8
Recommended batt. capacity (Ah)	18-60	45-150	9-30	24-80
Switch to Floating mode (A)	0.2	0.8	0.2	0.4
Secondary fuse (A)	7.5	20	7.5	15
Input wired	•	•	•	•
Ouput wired	•	•	•	•
Warranty	2 years			

MDCI and MDC series

MDCI – DC/DC converter, switch-mode, isolated

Model	MDCI 100	MDCI 200	MDCI 360	MDCI 360 Charger
Power (W)	100	200	360	330
Input variants (Vdc)	A-B-C-D	A-B-C-D	A-B-C-D	A
Output variants (Vdc/A) +- 2	12.5/8-24/4	12.5/16-24/8	12.5/30-24/15	27,6/12
Galvanic isolation	•	•	•	•
Isolation voltage (V)	400			
Efficiency @ full load (%)	± 85			
Off-load current (mA)	< 25			
Operating temperature	-20 / +45°C			
Ambiant temp. (20°) increase after 30 min. @ full load	25°C	30°C		
Cooling	Convection	Fan		
Dimensions HxWxD (mm)	49x88x152	49x88x182	64x163x160	
Weight (gr)	500	600	1400	

* A = 9-18 Vdc B = 20-35 Vdc C = 30-60 Vdc D = 60-120 Vdc

MDC –DC/DC converter, switch-mode, not-isolated

Model	MDC 1224-7	MDC 2412-5	MDC 2412-8	MDC 2412-12	MDC 2412-20	MDC 2412-30
Current (A)	7	5.5	8	12	20	30
Input (Vdc)	9-18	18-35			20-35	
Output (Vdc)	24	13.2			13.8	
Efficiency @ full load (%)	90					
Off-load current (mA)	< 15	< 5			25	
Operating temperature	-20 / +40°C					
Ambiant temp. (20°) increase after 30 min. @ full load	30°C	20°C	30°C	33°C		
Cooling	Convection					Fan
Dimensions HxWxD (mm)	49x88x98	49x88x68	49x98x88		49x88x126	49x88x151
Weight (gr)	300	170	250	260	480	600

Data may change without any notice.

Common features MDCI & MDC		
Paralleling		Max. 2 converters
Humidity		Max. 95% non condensing
Protection	Overload	Up to short-circuit
	Overheating	Output voltage reduction
	Overvoltage	Transient protection by Varistor
	Reverse polarity	Fuse
Casework		Anodized aluminium
Connections		6.3 mm Faston
Warranty		2 years
Norms		EN 50081-1 (emission) EN 50082-1 (immunity) 95/54/EC (automotive directive)

MBI serie

MBI – Battery isolator, voltage drop free

Model	MBI 100/2 IG	MBI 150/2 IG	MBI 100/3 IG	MBI 150/3 IG	MBI 200/3 IG	MBI 2-100/3
Input nominal voltage (Vdc)	12/24					
Input voltage range (Vdc)	8-30					
Charge current max. (A)	100	150	100	150	200	100
Input number	1					2
Battery banks	2		3			
Voltage drop @ 10a/20A (V)	0.0 / 0.1					
Consumption (mA)	0					
Alternator start	•	•	•	•	•	
Operating temperature (°C)	-40 / +85					
Dimensions LxHxD (mm)	146x85x92		146x85x152			
Weight (gr)	780	810	780	810	815	780
Nominal voltage 12 or 24V	Automatic detection					
Insulation to ground	> 500V @ 60Hz					
Warranty	2 years					
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) EN 60950-1 (safety)					

MBR serie

MBR – Microprocessor controlled battery separator

Model	MBR 12/24-100	MBR 12-160	MBR 24-160	MBR 12-400	MBR 24-400
Nominal voltage (Vdc)	12/24	12	24	12	24
Charge current max. (Amp)	100	160		400	
Connection threshold (Vdc)	13.2/26.4	13.2	26.4	13.2	26.4
Disconnection threshold (Vdc)	12.8/25.6	12.8	25.6	12.8	25.6
Battery banks	2				
Alternator start	•	•	•	•	•
Start contact for batteries paralleling		•	•	•	•
Micro switch for remote status indication				•	•
Dimensions LxHxD (mm)	46x46x80	46x93x96		78x102x110	
Weight (gr)	110	300		900	
Consumption	< 5mA				
Voltage stability	± 2%				
Protection of the auxiliary battery against overvoltage	16 / 32Vdc				
Connection on the battery side	M6				
Other connections	6.3 mm Faston				
Warranty	2 years				
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) Automotive Directive 95/54/CE				

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MBW serie

MBW – Battery watch

Model	MBW 30	MBW 60	MBW 200
Nominal voltage (Vdc) depends on jumpers	12/24		
Nominal current (Amp)	25	50	150
Max. continuous current 5' (Amp)	30	60	200
Peak current (Amp)	40	70	300
Operating voltage range (Vdc)	6-35		8-32
Consumption (mA)	< 7		< 3
Alarm output delay	15 seconds		
Alarm output max. current (mA)	500		
Load disconnect delay	1 minute		30 secondes
Voltage level accuracy	0.2V	2%	0.1V
Casework	Anodized aluminium, black		
Weight (gr)	200		580
Dimensions HxDxL (mm)	49x88x68	80x60x40	145x92x85
Battery protection	Against excessive discharge		
Users protection	Against overvoltages (16 / 32 Vdc)		Against overvoltages (15.5 / 31 Vdc)
MOSFET switches	No sparks		
Norms	EN 50081-1 (emission) EN 50082-1 (immunity) Automotive Directive 95/54/CE		EN 50081-1 (emission) Automotive Directive 95/54/CE

Jumper selectable voltage	
Disengage (V)	**Engage (V)**
10	11.5
10.5	12
11	13
11.5	13.8
21.5	24.5
22	25
22.5	25.5
23	26.5

SBM-02

SBM-02 – Battery monitor 12 and 24Vdc

Model		SBM-02
Supply voltage range		9-35 Vdc
Supply current @ 12Vdc, without BL		9 mA
Supply current @ 24Vdc, without BL		7 mA
Input voltage range («Auxiliary» battery)		2...35 Vdc
Input voltage range («Main» battery)		0...35 Vdc
Input current range		-9999…+9999 A
Battery capacity range		20…9990 Ah
Operating temperature range		-20…50°C
Protection class		IP20 (Frontpanel IP65)
Dimensions	Front panel	Ø 64 mm
	Body diameter	Ø 52 mm
	Total depth	79 mm

Standart equipment SBM-02
Potential free alarm contact
500A/50mV current shunt
Optional accessories
SBM-PS-02-Voltage pre-scaler 1:5 (adapting the SBM-02 to input voltage 27-175Vdc)
Connection kit, type SBM-CAB-20, including 20m of twisted pair cable (3x2x0.5mm2) and 2 fuseholders
Communication kit, type SBM-COM, including RS232 interface box, 1.8m of 9p DSUB serial cable and a sortware
Temperature kit, type SBM;-TEMP-20, with 20 m cable

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